

please enter the specification Amendment

Appl. No.

Amdt. Dated March 16, 2004

Thanks. RO 3/28/05

Amendments to the Specification:

Page 12, second complete paragraph:

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For the continuous rotary movement of the rotor 13, upon the attainment of a given rotary angle position of the rotor 13 relative to the stator 15, there must be a transition from the half-bridge 17 of a stator coil pair to the next one, that is to say, the supply of current must be advanced from one winding line to the next. To provide for that commutation procedure, it is now no longer provided that the position of the permanent-magnetic rotor 13 with respect to the stator 15 is detected directly by a magnetic field sensor installed in the motor 14, but rather the angular position, which is identical to the rotary angle position of the rotor and the rotary angle position of the washing drum, of an actuator disc 30 which in turn is non-rotatably connected to the shaft of the drum 12 or of the rotor 13, relative to the ~~machine housing~~ wash tub 31 in which the drum 12 rotates, that is to say also relative to the stator 15 of the motor 14 ~~or relative to the drum mounting in the washing machine 11, is~~ interrogated. Because the resolution of the actuator disc 30 can be substantially greater than the number of magnetic rotor dipoles of the rotor 13 and because the widely scattering rotor dipole field is no longer detected by the sensor, that operation of externally ascertaining the rotary angle by way of an incremental counter for the commutation operation affords a substantially higher level of angle resolution, that

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is to say, by way of a more precise commutation operation, it affords smoother running even at extreme rotary speeds or load moments.

Specification

belt transmission; primarily however the configuration of a direct drive will be selected, in which the rotor 13 is non-rotatably connected to a shaft of the washing drum 12.

- 5 The drive motor 14 is a brushless dc voltage motor or synchronous motor whose permanent-magnetic rotor 13 rotates with the rotary field produced in a stator 15 by a program-controllable inverter 16. The rotary field is produced by a multi-phase winding system in the stator 15, which is supplied
- 10 with current periodically and in phase-displaced relationship by a correspondingly multi-phase inverter 16. For that purpose half-bridges 17 of the inverter 16, which are associated with the respective winding lines of the stator 15, are cyclically actuated from a processor 18 in per se known
- 15 manner in such a way that the rotary field which rotates at the desired angular speed is produced in the stator 15 of the drive motor 14. The electrical energy for that purpose is taken from a capacitive storage of a dc intermediate circuit 19 which is charged up again from the general ac voltage
- 20 network 21 by way of an ac voltage to dc voltage converter 20.

Sub a

25 For the continuous rotary movement of the rotor 13, upon the attainment of a given rotary angle position of the rotor 13 relative to the stator 15, there must be a transition from the half-bridge 17 of a stator coil pair to the next one, that is to say, the supply of current must be advanced from one

winding line to the next. To provide for that commutation procedure, it is now no longer provided that the position of the permanent-magnetic rotor 13 with respect to the stator 15 is detected directly by a magnetic field sensor installed in the motor 14, but rather the angular position, which is identical to the rotary angle position of the rotor and the rotary angle position of the washing drum, of an actuator disc 30 which in turn is non-rotatably connected to the shaft of the drum 12 or of the rotor 13, relative to the ^{wash tube in which the drum 12 rotates} machine housing, that is to say also relative to the stator 15 of the motor 14 ~~or relative to the drum mounting in the washing machine 11, is interrogated.~~ Because the resolution of the actuator disc 30 can be substantially greater than the number of magnetic rotor dipoles of the rotor 13 and because the widely scattering rotor dipole field is no longer detected by the sensor, that operation of externally ascertaining the rotary angle by way of an incremental counter for the commutation operation affords a substantially higher level of angle resolution, that is to say, by way of a more precise commutation operation, it affords smoother running even at extreme rotary speeds or load moments.

2.3.04
M.W.

Continuous incremental detection of the instantaneous rotary angle position of the rotor 13 is preferably effected by an optoelectronic incremental sensor 22 operating as a light barrier configuration. A pulse sender 23 thereof reacts to